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2010 BOBCAT HUNTER AND TRAPPER HARVEST IN MICHIGAN

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ABSTRACT

*A survey was completed to determine the number of people hunting and trapping bobcats in Michigan, the number of days spent afield (effort), and the number of bobcats registered. In 2010, 4,208 people obtained a bobcat harvest tag valid for the hunting and trapping seasons (*11% greater than in 2009*). About 57% (2,393) of these tag-holders attempted to hunt or trap bobcats, and 26% of these furtakers registered at least one bobcat. An estimated 1,734 people attempted to hunt bobcats and spent 16,591 days hunting and registered 363 bobcats. Nearly 887 people attempted to trap bobcats and spent nearly 17,822 days trapping and registered 374 bobcats. The number of hunters and trappers combined (7%) and their effort (12%) increased significantly statewide between 2009 and 2010; however, the number of bobcat taken between 2009 and 2010 was not significantly different. The 2009 and 2010 hunting seasons in the UP were 34% shorter (31 fewer days) and trapping seasons in the UP were 51% shorter (65 fewer days) than previous years. Despite the shorter seasons in the UP, the number of bobcat harvested in the UP has not changed markedly. Between 1997 and 2007, the days of effort required by furtakers to harvest a bobcat in both the UP and LP increased significantly. During the last two years, however, the effort per registered bobcat has declined in the UP. The measure of effort per bobcat registered is an indirect measure of the abundance of bobcats. Changes in the effort per registered bobcats are inferred to signify changes in bobcat numbers. Decreasing effort per catch in the UP implies increasing bobcat numbers in the UP during the last few years. In contrast, an unchanging effort per catch in the LP indicates stable bobcat numbers in the LP.*

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INTRODUCTION

The Natural Resources Commission (NRC) and Michigan Department of Natural Resources (DNR) have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are one of the management tools used to accomplish this statutory responsibility. Estimating hunter and trapper participation, harvest, and days afield (effort) are the primary objectives of these surveys. Estimates derived from harvest surveys, as well as information from mandatory registration reports, field surveys, and population modeling are used to monitor bobcat (*Lynx rufus*) populations and establish harvest regulations.

During 2010, bobcats could be harvested during both hunting and trapping seasons (Tables 1 and 2). The length of the hunting and trapping seasons were the same as in 2009. In order to hunt or trap bobcats, furtakers were required to obtain a free bobcat harvest tag, in addition to a fur harvester license. In the Upper Peninsula (UP), except Drummond Island, furtakers could legally take and register two bobcats in the hunting and trapping seasons combined. Only one bobcat could be taken from Drummond Island (Unit B), and only one bobcat could be legally taken and registered in units C or D combined (Lower Peninsula [LP]) (Figure 1). Successful furtakers were required to immediately attach the harvest tag to the bobcat and were required to register bobcats within 10 days of the end of the season for the unit in which the bobcat was taken. Furtakers were not allowed to keep bobcats that were beyond the legal limit of bobcats per person and bobcats taken outside the area open for harvest (incidental catches). Furtakers were required to bring incidental catches to a registration station if they could not be released alive. Although all furtakers harvesting a bobcat were required to present their animals at a DNR office for registration, this survey does not present information collected from registered bobcats.

Prior to 2004, only hunters were allowed to harvest a bobcat in the LP, as bobcat trapping was restricted to the UP (Tables 1 and 2). During 2004, 2005, 2008, 2009, and 2010, an 11-day bobcat trapping season (December 10-20) was held on private lands in portions of the LP.

In 2010, trappers could use foothold and body-gripping traps (i.e., conibears) to capture bobcats in the UP and foothold traps only in the LP. Live traps were also legal if set within 150 yards of a residence or farm building. Bobcat trapping was permitted on both public and private lands. Most hunters traditionally used calls or dogs to take bobcats (Frawley 2011). Bobcat hunting was permitted on both public and private lands in the LP and UP.

METHODS

A questionnaire was sent to everyone who obtained a bobcat harvest tag holders in 2010 (4,208 tag holders). Furtakers receiving the questionnaire reported whether they attempted to hunt or trap a bobcat, number of days spent afield, and number of bobcats they registered. Hunters were also asked to report their hunting method (e.g., dogs, calls) and the number of bobcats that were within range to take but they chose not to harvest. Hunters that used dogs were asked to report who owned the dogs, number of occasions their dogs chased a bobcat, and whether they hired a guide. Trappers were asked to report the number of bobcats caught in traps and the number of bobcats released alive. Trappers also were asked to report the types of traps used, their preferred trap type, and whether they caught any bobcats in a trap

set for another animal. All furtakers were asked the ownership of lands where they pursued bobcats and their opinion of the status of the bobcat population in the county where they preferred to hunt or trap.

Questionnaires were mailed initially during mid-March 2011, and nonrespondents were mailed up to two follow-up questionnaires. Although 4,208 people were sent the questionnaire, 91 surveys were undeliverable, resulting in an adjusted sample size of 4,117. Questionnaires were returned by 2,562 people, yielding a 62% adjusted response rate.

Although all harvest tag holders had an opportunity to report information about their hunting and trapping activity, not everybody reported. To extrapolate from the tag holders that completed their questionnaire to all people obtaining harvest tags, estimates were calculated using a simple random sampling design (Cochran 1977). The number of animals registered was used as an auxiliary variate to improve the estimates of mean days of effort required per registered bobcat (i.e., ratio estimates). The 95% confidence limit (CL) was also calculated for all estimates. This CL can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Estimates were not adjusted for possible response or nonresponse bias.

Statistical tests are used routinely to determine the likelihood the differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was larger than would be expected 995 out of 1,000 times ($P < 0.005$), if the study had been repeated (Payton et al. 2003).

RESULTS

Hunting and Trapping Combined

In 2010, 4,208 people obtained a bobcat harvest tag valid for the bobcat hunting and trapping seasons, which was 11% greater than in 2009. About 57 ± 1% (2,393) of these tag holders attempted to hunt or trap bobcats (Table 3). Furthermore, about 5 ± 1% (228 ± 23) of the tag holders attempted both hunting and trapping bobcats.

Furtakers spent 34,413 days afield ($\bar{x}$ = 14.4 ± 0.6 days/furtaker) and registered 737 bobcats ($\bar{x}$ = 0.31 ± 0.02 bobcats/furtaker). Furtakers spent about 22,090 days afield pursuing bobcats in the UP and 12,126 days in the LP (Table 3). About 26% of the furtakers registered at least one bobcat (Table 4). Nearly 21 ± 1% of the furtakers registered only one bobcat and 5 ± 1% registered two bobcats. About 34% of the furtakers in the UP registered at least one bobcat (Table 4). Nearly 24 ± 2% of the UP furtakers registered only one bobcat and 10 ± 1% registered two bobcats. An estimated 19% of furtakers in the LP registered a bobcat.

The number of furtakers (7%) and their effort (12%) increased significantly statewide between 2009 and 2010; however, the number of bobcat taken between 2009 and 2010 was not significantly different (Tables 3-4, Figure 2). Similarly, the number of furtakers (18%) and their effort (20%) increased significantly in Unit D in the Lower Peninsula between 2009 and 2010.

Counties with 140 or more furtakers that pursued bobcats included Menominee, Alcona, Delta and Montmorency (Table 5). Counties with 40 or more registered bobcats taken within that county included Ontonagon, Delta, Menominee, and Mackinac.

About 28 ± 1% of bobcat tag-holders reported the bobcat population was stable in the county they preferred to hunt or trap bobcats, which was similar to the 2009 estimate (Figures 3-5). About 12 ± 1% reported bobcat numbers were improving and 12 ± 1% reported fewer bobcats. Nearly 39 ± 1% of the tag-holders were uncertain of the status of bobcats.

Hunting

About 41 ± 1% (1,734 hunters) of the tag-holders attempted to hunt bobcats during the 2010 seasons (Table 6). About 604 furtakers hunted in the UP and 1,165 hunted in the LP. These hunters had hunted bobcats an average of 7.6 years (±0.4 year). Bobcat hunters most frequently hunted on public land (68 ± 2%). About 39 ± 2% of the hunters hunted on private land not owned by themselves or their family, while 36 ± 2% hunted bobcats on their own land or land owned by their family. Nearly 32 ± 2% of the hunters hunted on public land only, 32 ± 2% hunted on private land only, and 37 ± 2% hunted on both public and private lands.

Hunters spent about 16,591 days afield hunting bobcats ($\bar{x}$ = 9.6 ± 0.4 days/hunter) and registered an estimated 363 bobcats ($\bar{x}$ = 0.21 ± 0.02 bobcats/hunter, Table 7). Hunters spent about 6,549 days afield hunting bobcats in the UP and 9,852 days hunting bobcats in the LP. The estimated number of days of effort per bobcat registered by hunters statewide was 45.7 days in 2010.

Hunters registered about 49% of the bobcats registered by furtakers (Figure 6). About 19% of bobcat hunters harvested at least one bobcat (Table 7). Nearly 18 ± 1% of hunters registered only one bobcat and 2 ± 0.5% registered two bobcats. An estimated 24% of the hunters in the UP registered at least one bobcat; 21 ± 3% of UP hunters registered one bobcat and 3 ± 1% registered two bobcats. An estimated 16% of hunters in the LP registered a bobcat.

Counties with 100 or more hunters pursuing bobcats included Montmorency, Alcona, Roscommon, Oscoda, and Menominee (Table 8). Counties with more than 20 hunter-registered bobcats originating from that county included Mackinac, Montmorency, Delta, and Alcona.

The number of hunters statewide and their hunting effort did not change significantly between 2009 and 2010 (Table 6). However, the number of hunters increased significantly in Unit D in the LP. The number of bobcats passed by hunters and bobcats registered by hunters did not change significantly statewide between 2009 and 2010. However, the number of bobcats passed by hunters increased significantly in Unit C in the LP. The number of days of effort per bobcat registered by hunters statewide (45.7) was not statistically different from estimates for 2009 (Table 9, Figure 7).

Hunters most frequently used calls (59 ± 2%) or dogs (38 ± 2%) to hunt bobcats (Table 10). The estimated number of people hunting bobcats with dogs statewide did not differ significantly between 2009 and 2010 (Table 11). Hunting effort and bobcats passed by hunters also did not change significantly statewide between 2009 and 2010; however, hunter success and number

of bobcats registered increased significantly (Tables 11 and 12). The estimated number of people hunting bobcats with calls statewide did not differ significantly between 2009 and 2010 (Table 13). Among hunters using calls, the number of bobcats registered and the proportion of hunters registering a bobcat also did not change significantly statewide between 2009 and 2010 (Table 14).

Bobcat hunters using dogs participated in an estimated 3,016 ± 286 chases of bobcats during the open season, which was similar to the estimate for 2009 (Figure 8). About 29 ± 2% of the bobcat hunters had an opportunity to harvest a bobcat but chose not to harvest the bobcat. Thus, an estimated 494 ± 33 hunters chose not to harvest bobcats on 1,398 ± 136 occasions (Figure 8). Among those hunters that passed up an opportunity to take a bobcat, 37 ± 3% passed one bobcat, 27 ± 3% passed two bobcats, 13 ± 2% passed three bobcats, 8 ± 2% passed four bobcats, and 15 ± 3% passed five or more bobcats. The estimate of the number of bobcats passed by hunters should be viewed cautiously because hunting partners may have reported passing the same bobcat; thus, the estimate will be inflated by an unknown amount. Few bobcat hunters (9 ± 2%) that hunted with dogs hired a guide service to assist with their hunting (57 ± 12 hunters).

About 29 ± 2% of bobcat hunters reported the bobcat population was stable in the county they preferred to hunt bobcats, which was similar to the 2009 estimate (Figures 3-5). About 10 ± 1% reported bobcat numbers were increasing and 17 ± 1% reported fewer bobcats. Nearly 35 ± 2% of bobcat hunters were uncertain of the status of bobcats.

The mean value of bobcat pelts was usually positively correlated with the number of hunters, their days spent afield, and days of effort per registered bobcat during 1997-2010 (Table 15). In contrast, the mean value of bobcat pelts was negatively correlated with the number of bobcats registered in the UP and uncorrelated with registrations totals in the NLP.

Trapping

An estimated 21 ± 1% (887 trappers) of the tag-holders trapped bobcats during the 2010 season (Table 16), and these trappers had trapped bobcats an average of 9.3 years (±0.7 year). Most trappers trapped bobcats on private land owned by themselves or their family (55 ± 3%). Roughly equal proportions of trappers trapped on private lands not owned by themselves or their family (40 ± 3%) or trapped on public land (33 ± 2%). About 66 ± 3% trapped on private land only, 13 ± 2% of the trappers trapped on public land only, and 21 ± 2% trapped on both public and private lands.

Trappers spent about 17,822 days afield trapping bobcats ($\bar{x}$ = 20.1 ± 1.1 days/trapper), caught 498 bobcats, registered 374 bobcats ($\bar{x}$ = 0.42 ± 0.03 bobcats/trapper), and released 123 bobcats from their traps during the 2010 season (Table 16, Figure 9).

The number of trappers (12%) and the number of days spent trapping (32%) increased significantly statewide between 2009 and 2010; however, the number of bobcats captured and the number of bobcats registered by trappers did not change significantly (Table 16 and 17). The proportion of trappers catching and registering a bobcat also did not change significantly between 2009 and 2010 (Table 18). The estimated number of days of effort per bobcat

registered by trappers statewide was 47.6 days in 2010 and did not change significantly from 2009 (Table 19, Figure 7). Within the LP, the number of days of effort per bobcat registered by trappers declined significantly in Unit C but increased significantly in Unit D.

Trappers registered about 51% of the bobcats registered by furtakers (Figure 6). About 36% of bobcat trappers captured at least one bobcat and 33% registered at least one bobcat (Table 18). Nearly 23 ± 2% of the trappers registered only one bobcat and 10 ± 2% registered two bobcats. Nearly 9 ± 2% of the bobcat trappers caught bobcats that they released. They released 123 bobcats from their traps. About 9 ± 1% of the bobcat trappers caught a bobcat in a trap set for another furbearer (Figure 9).

Counties with 60 or more trappers pursuing bobcats included Delta and Menominee (Table 20). Counties with more than 30 registered bobcats originating from that county included Ontonagon, Menominee, Delta, and Gogebic.

Most trappers used foothold traps (77%), while 41% of the trappers used body gripping traps (i.e., conibears) (Table 21). Most trappers preferred to use foothold traps (50%), while 29% preferred to use conibears (Table 22). An estimated 18% of trappers did not have a preferred trap type.

About 41 ± 3% of bobcat trappers reported the bobcat population was stable in the county they preferred to trap bobcats (Figures 3-5). About 22 ± 2% reported bobcat numbers were increasing and 9 ± 2% reported fewer bobcats. Nearly 22 ± 2% of bobcat trappers were uncertain of the status of bobcats.

The mean value of bobcat pelts was usually positively correlated with the number of trappers, their days spent afield, and days of effort per registered bobcat during 1997-2010 (Table 23). In contrast, the mean value of bobcat pelts was not significantly correlated with the number of bobcats registered.

DISCUSSION

Many factors influence bobcat harvest trends including furtaker numbers, bobcat numbers, harvest regulations, habitat conditions, weather, and fur prices; thus, any interpretations of trends should be viewed cautiously. Moreover, estimates of events that occur infrequently (e.g., harvesting a bobcat) are difficult to estimate precisely using common sampling designs (Cochran 1977). Relatively few furtakers harvest bobcat; thus, estimates from the statewide fur harvesters survey from previous years often have been imprecise (Frawley 2001). Beginning with the 2004-2005 bobcat season, however, all licensed furtakers attempting to harvest a bobcat in Michigan were required to obtain a free bobcat harvest tag from the DNR. Beginning with the 2004 season, the DNR has used these lists of tag holders to design surveys that result in more precise estimates.

Using indices to monitor wildlife populations is standard practice in wildlife management, and most states use a variety of indices for evaluating furbearer populations. The DNR considers the logistics of data collection, data reliability, ability of the index to detect population change, and cost when selecting an index. Historical, long-term data sets are also valuable for evaluating changes in harvest regulations over time. The DNR uses several indices to monitor

the bobcat populations and to recommend to the NRC changes in bobcat harvest regulations. Each of these indices measures an attribute of the bobcat population and independently can be used to monitor changes in population status. Use of multiple indices strengthens the assessment of population status.

The 2009 and 2010 hunting seasons in the UP were 34% shorter (31 fewer days) and trapping seasons in the UP were 51% shorter (65 fewer days) than previous years (Tables 1 and 2). Despite the shorter seasons in the UP, the number of bobcat harvested in the UP has not changed markedly.

Between 1997 and 2007, the days of effort required by furtakers to harvest a bobcat in both the UP and LP increased significantly (Figure 7). During the last two years, however, the effort per registered bobcat has declined in the UP where seasons were shortened but has been relatively unchanged in the LP where season length was unchanged. The measure of effort per bobcat registered is an indirect measure of the abundance of bobcats. Changes in the effort per registered bobcats are inferred to signify changes in bobcat numbers. Decreasing effort per catch in the UP implies increasing bobcat numbers in the UP during the last few years. In contrast, an unchanging effort per catch in the LP indicates stable bobcat numbers in the LP.

About 26% of bobcat hunters and trappers combined registered at least one bobcat in Michigan during the 2010 seasons, while 25-26% ($\bar{x}$= 25%) of bobcat hunters and trappers harvested at least one bobcat in Michigan during the last three years (Frawley and Etter 2008, Frawley 2011). Success rates in Michigan during the last three years have been lower than success rates of hunters and trappers in Wisconsin (60-73% [$\bar{x}$= 68%] during 2008-2010, Dhuey and Olson 2009, 2010; Dhuey et al. 2011) and in Pennsylvania (39-42% [$\bar{x}$= 40%] during 2006-2008, Lovallo 2009). Differences between states may reflect differences in bobcat numbers and harvest regulations.

Approximately equal numbers of furtakers (hunters and trappers combined) pursued bobcats in the UP and the LP; however, furtakers expended about 80% greater effort in the UP than in the LP (Table 3). The proportion of furtakers registering a bobcat also was higher in the UP than the LP (34% versus 19%). These differences between regions partly reflect differences in regulations as furtakers could legally harvest only one bobcat from the LP, while two bobcats could be taken from the UP. Moreover, seasons were longer in the UP than in the LP (Tables 1 and 2).

About 90% more people attempted to hunt bobcats in the LP than in the UP in 2010 (Table 6), although the season is shorter in the LP (Tables 1 and 2). Hunters in the LP spent nearly 50% more days hunting bobcats than their counterparts in the UP. Hunters in the LP had more occasions where they chose not to harvest a bobcat than hunters in the UP; however, the proportion of hunters registering at least one bobcat was greater in the UP than in the LP (24% versus 16%).

Although there were nearly twice as many bobcat hunters than trappers in Michigan during the 2010 seasons, trappers registered about the same number of bobcats as hunters. Bobcat hunters devoted an average of 46 days of effort per bobcat registered, while trappers spent

about 48 days of effort per bobcat registered. These estimates of effort per catch for hunters and trappers were not significantly different.

Hunters that used dogs were more successful than hunters using calls (27% of hunters using dogs registered a bobcat versus 12% of hunters using calls, Table 10). Lovallo (2009) reported a mean success rate of 39% for hunters using dogs in Pennsylvania during 2000-2008, while the mean success rate for hunters using calls in Pennsylvania was 14%. Kitchell and Olson (2005, 2006, 2007) and Dhuey and Olson (2008, 2009) reported 42-79% ($\bar{x}$= 59%) of hunters using dogs registered a bobcat in Wisconsin during 2004-2008, while 18-48% ($\bar{x}$= 28%) of hunters not using dogs registered a bobcat.

About 9% of the bobcat trappers in Michigan released a bobcat from their traps set during the 2010 season, which was similar to the 2009 estimate (Frawley 2011). In comparison, 6-12% ($\bar{x}$= 9%) of Wisconsin bobcat trappers released a bobcat from their traps during 2006-2010 in Wisconsin (Kitchell and Olson 2007; Dhuey and Olson 2008, 2009, 2010; Dhuey et al. 2011).

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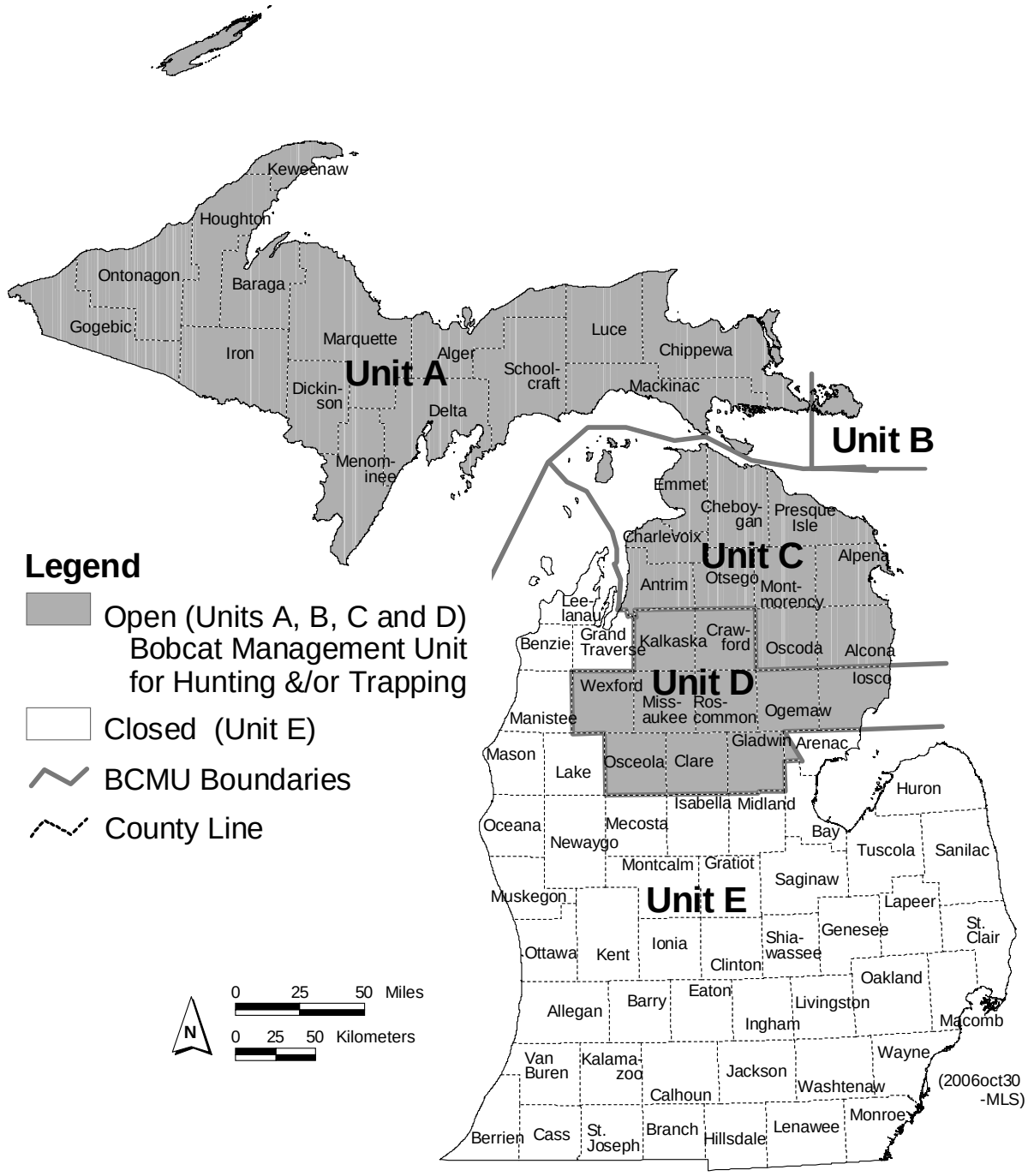


Figure 1. Bobcat Management Units in Michigan for the 2010 hunting and trapping seasons.

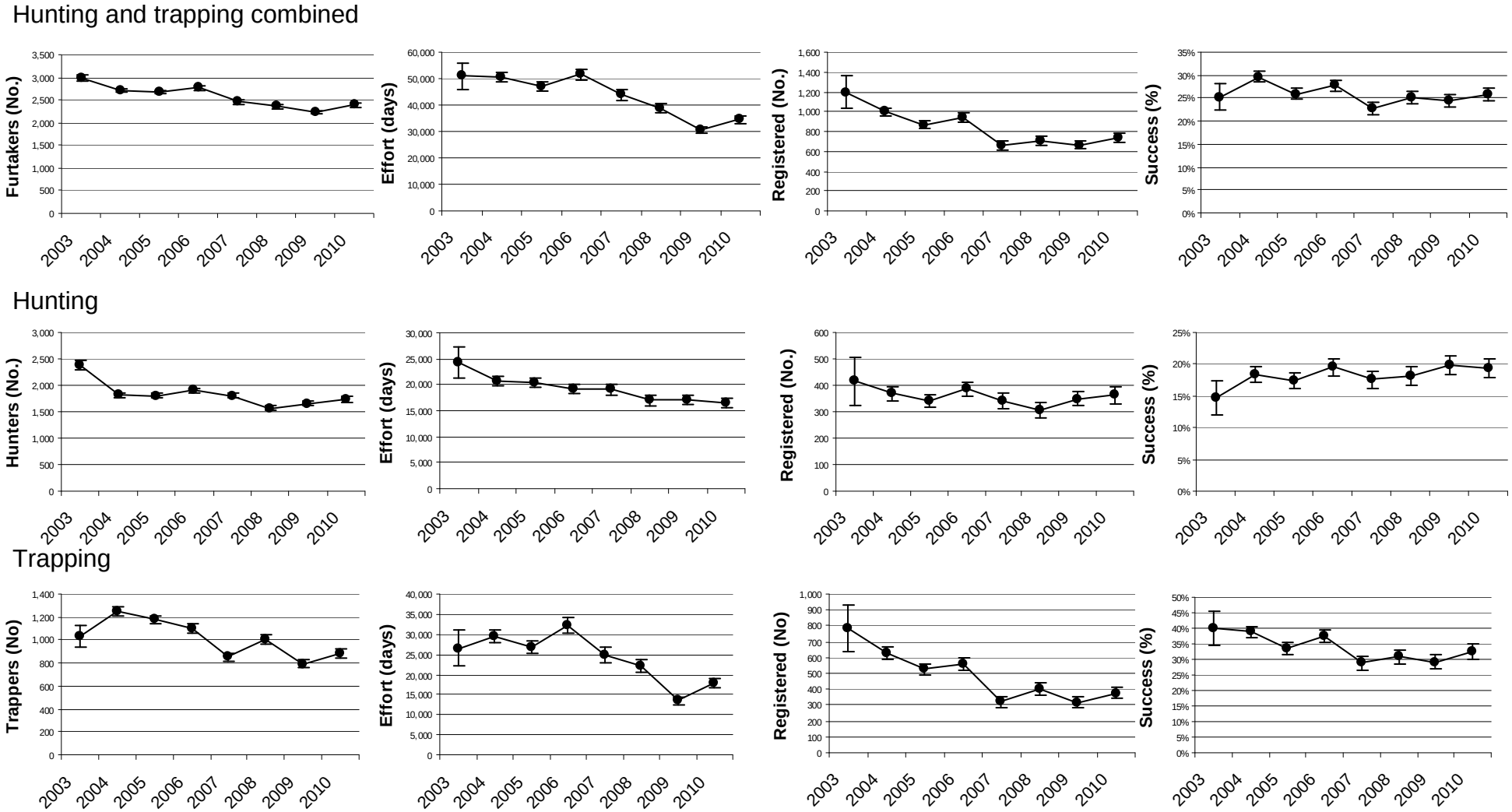


Figure 2. Number of furtakers pursuing bobcats, number of days of effort, number of bobcats registered, and proportion of furtakers registering a bobcat in Michigan during 2003-2010, summarized by method of take. Number of hunters and trappers does not add up to statewide total of hunters and trappers combined because a person could both hunt and trap bobcats. Vertical bars represent the 95% CL.

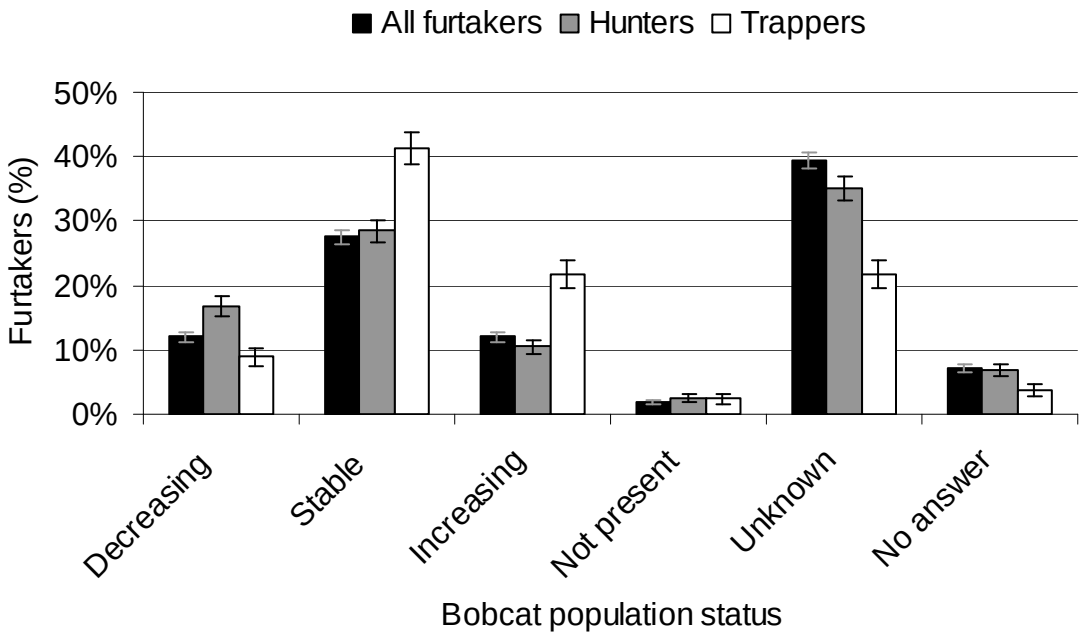


Figure 3. Status of bobcats in Michigan during 2010 as described by bobcat hunters and trappers. Vertical bars represent the 95% CL.

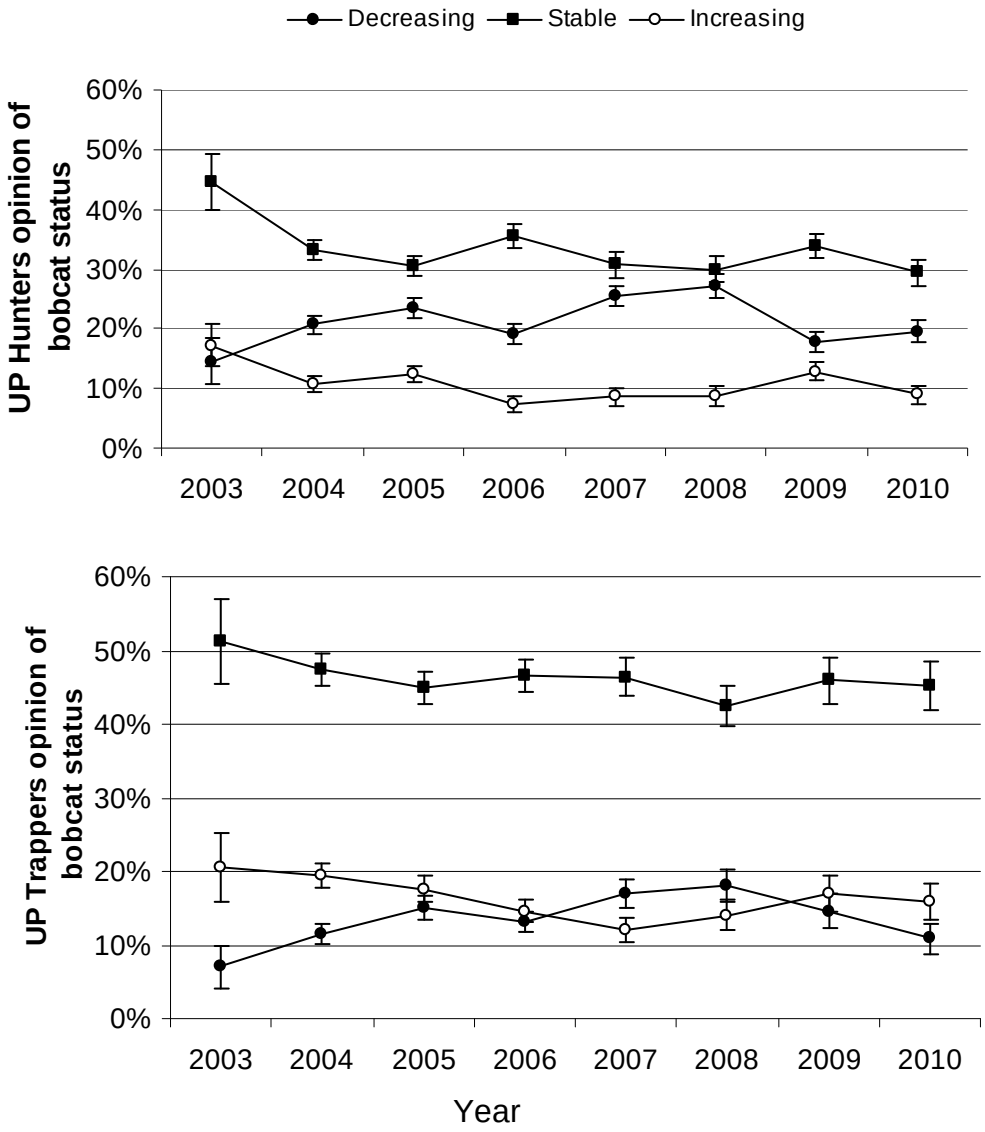


Figure 4. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Upper Peninsula, 2003-2010. Vertical bars represent the 95% CL.

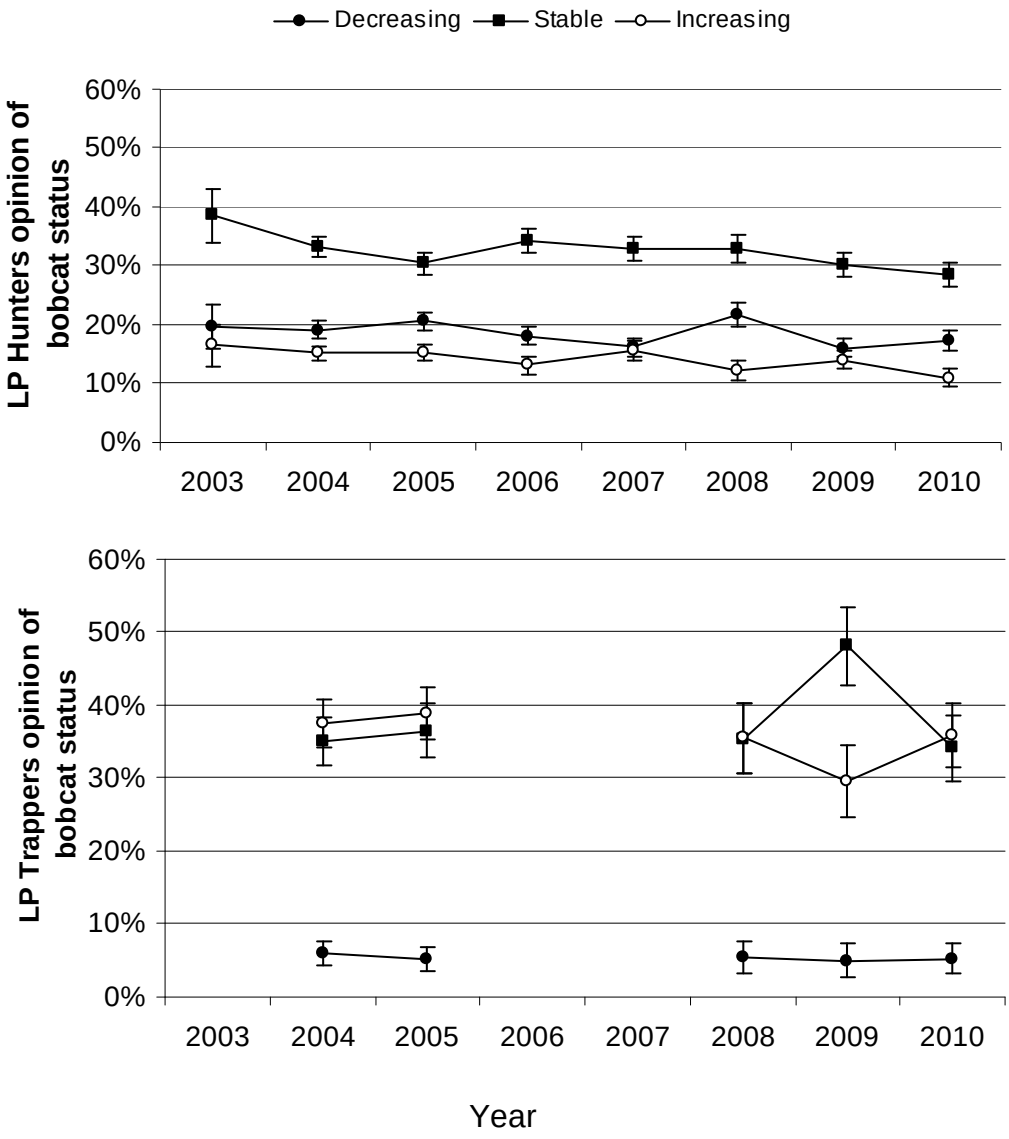


Figure 5. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Lower Peninsula, 2003-2010. Vertical bars represent the 95% CL.

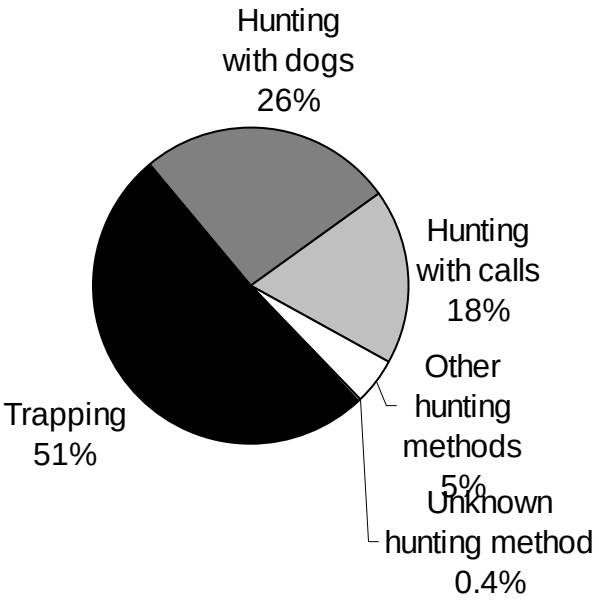


Figure 6. Proportion of bobcats registered in Michigan during 2010, summarized by method of take.

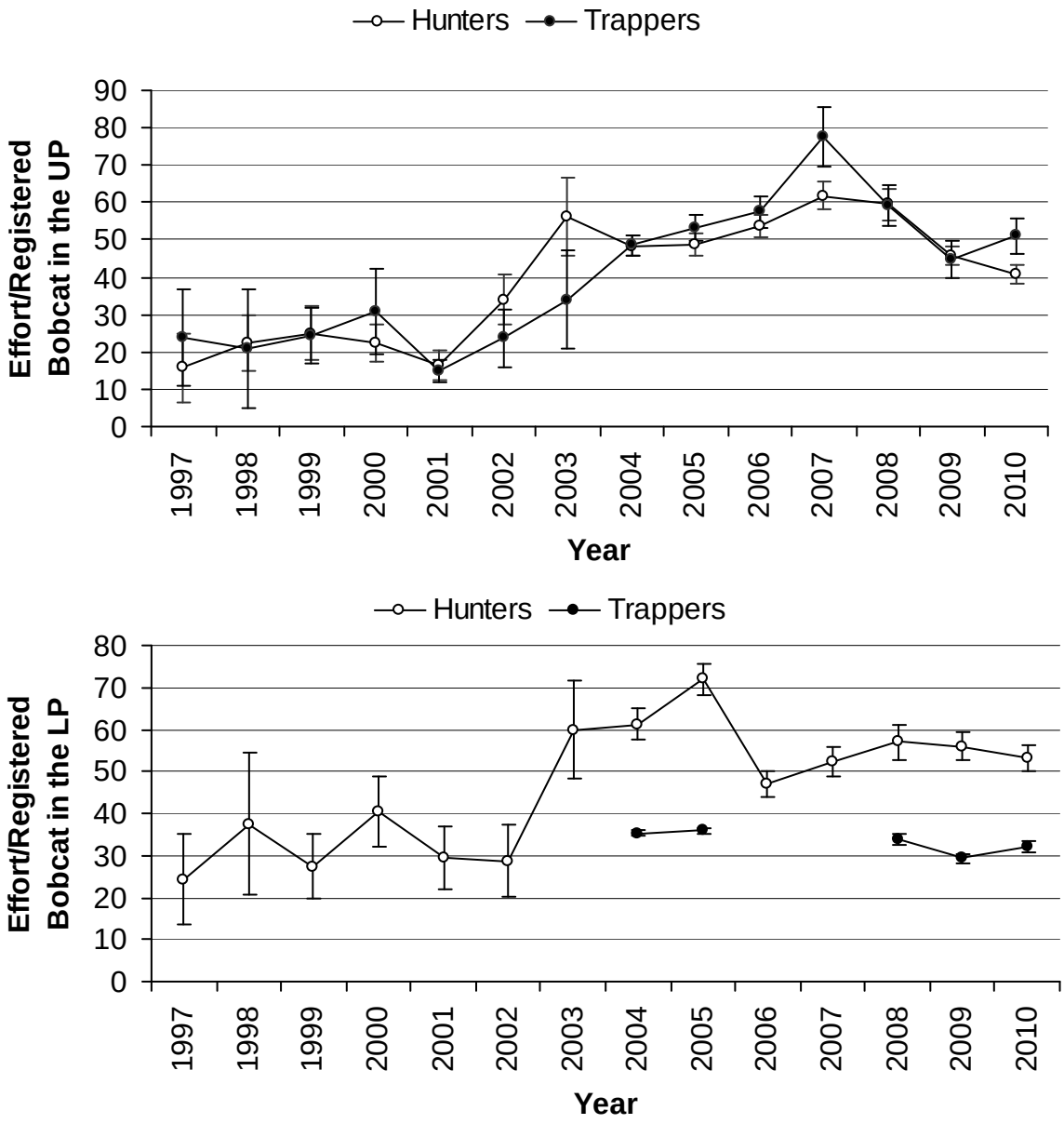


Figure 7. Estimated number of days of effort per bobcat registered in Michigan by hunters and trappers for the 1997-2010 seasons, summarized by region. Vertical error bars represent the 95% CL. Bobcat could be harvested by trappers in portions of the LP during 2004-2005 and 2008-2010 only.

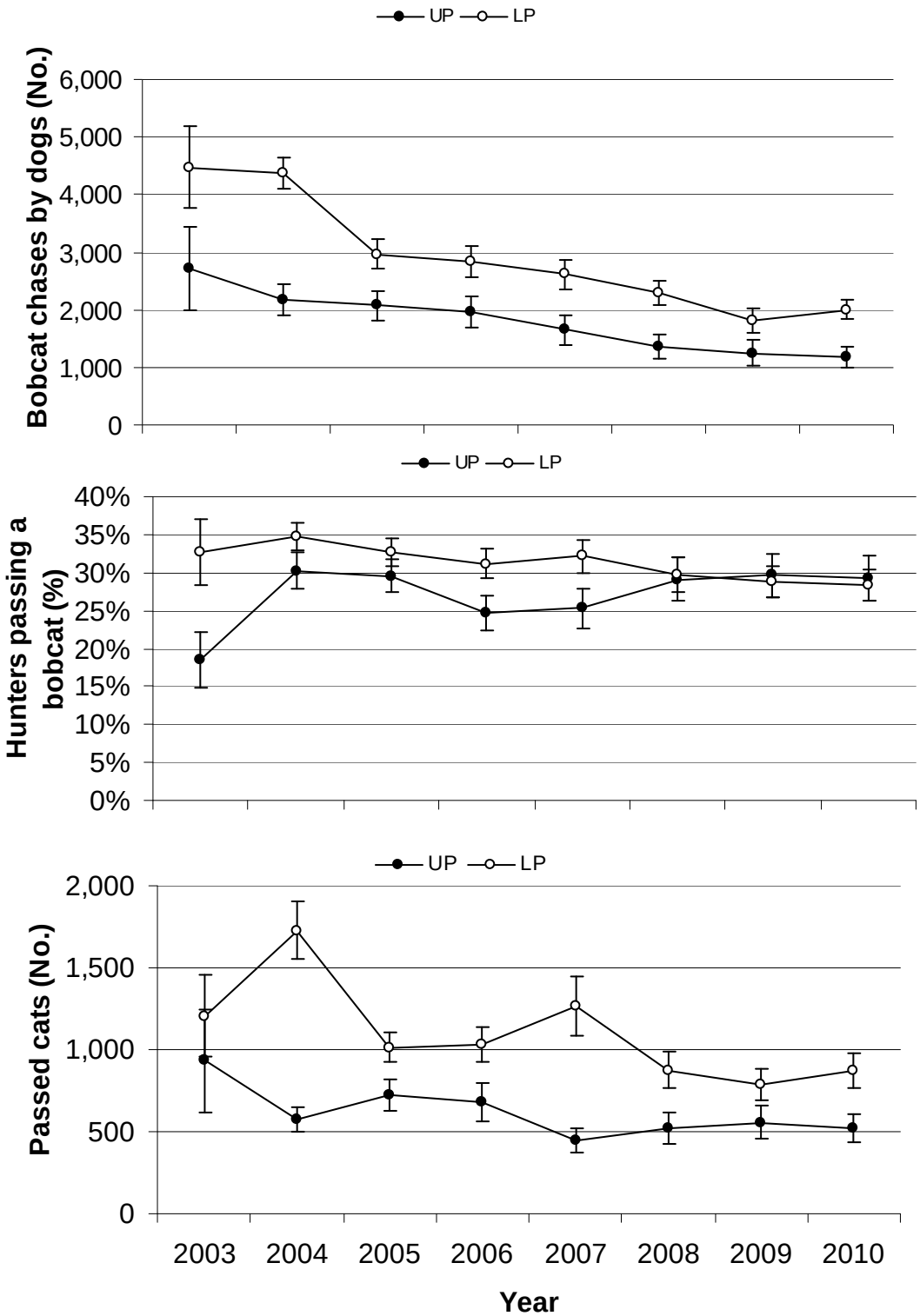


Figure 8. Number of bobcat chases by dogs, proportion of hunters passing a bobcat (bobcats within range or treed but not harvested), and number of bobcats passed by hunters (all types of hunting) in Michigan, 2003-2010. Vertical bars represent the 95% CL.

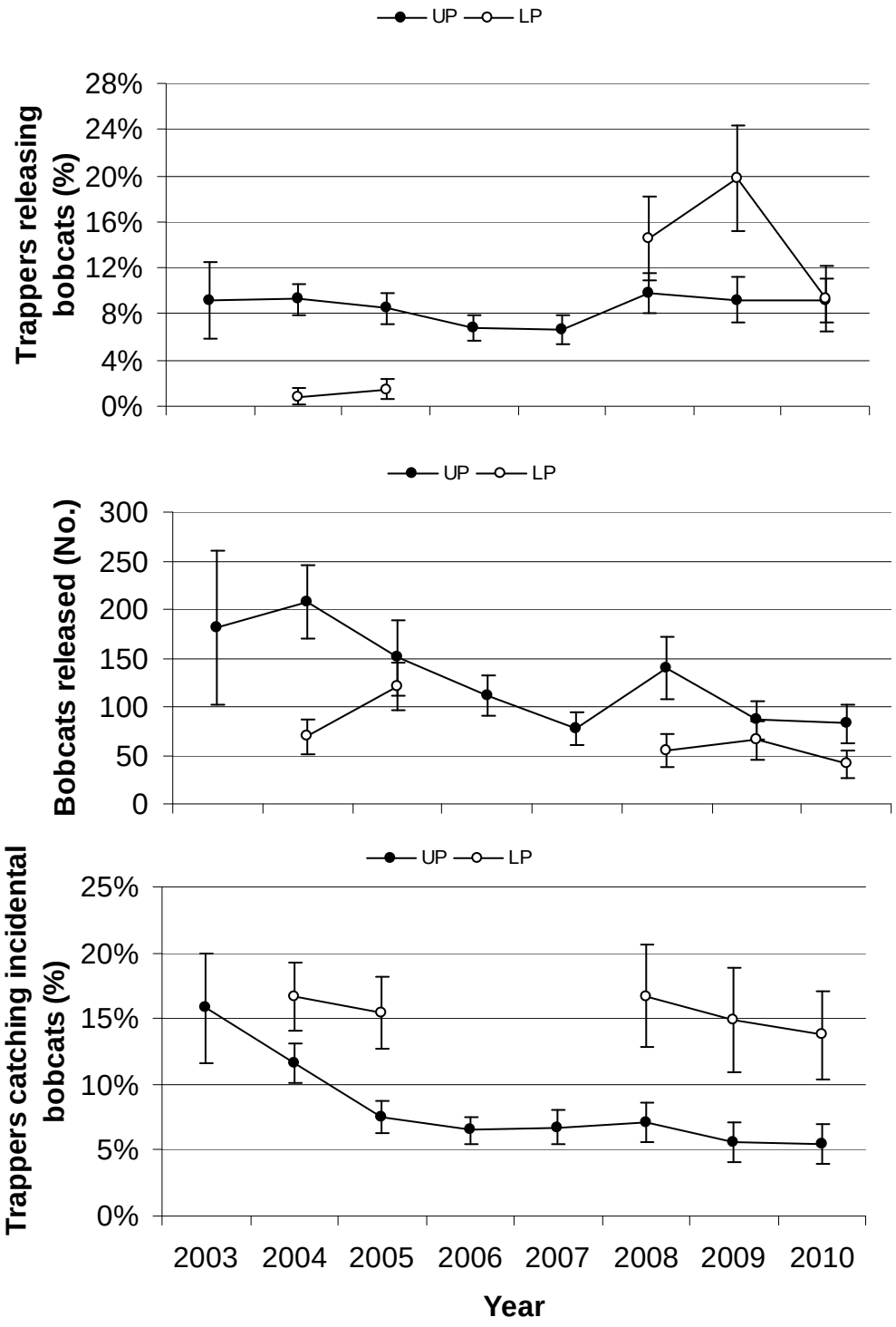


Figure 9. Number of trappers releasing bobcats from their traps, number of bobcats released from traps, and proportion of trappers that caught a bobcat in a trap set for another species (incidental catch) in Michigan, 2003-2010. Trapping of bobcat in the LP was permitted in 2004-2005 and 2008-2010 only. Vertical bars represent the 95% CL.

Table 1. Resident bobcat hunting season dates and seasonal bag limits in Michigan, 1985-2010.

Year	State-wide bag limit[a]	Hunting season zone: Upper Peninsula[b] Season dates	Upper Peninsula[b] Bag limit[a]	Drummond Island Season dates	Drummond Island Bag limit[a]	Lower Peninsula: North[c] Season dates	Lower Peninsula: South[d] Season dates	Lower Peninsula Bag limit[a]
1985	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1986	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1987	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1988	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1989	1	10/25-3/1	1	Closed	0	1/1-3/1	1/1-2/1	1
1990	1	10/25-3/1	1	Closed	0	1/1-3/1	1/1-2/1	1
1991	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	1
1992	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	1
1993	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	1
1994	2	10/25-3/1	2	Closed	0	1/1-3/1	1/15-2/16	1
1995	2	10/25-3/1	2	10/25-3/1	1	1/1-3/1	1/15-2/16	1
1996	3	10/25-3/1	3	10/25-3/1	1	1/1-3/1	1/15-2/16	1
1997	3	10/25-3/1	3	10/25-3/1	1	1/1-3/1	1/15-2/16	1
1998	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
1999	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2000	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2001	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2002	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2003	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2004	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2005	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2006	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2007	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2008	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2009	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1
2010	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1

[a]The statewide bag limit was the maximum number of bobcats that could be taken per person from all zones (hunting and trapping combined), and the bag limit for each zone was the maximum number that could be taken within a zone (hunting and trapping combined).

[b]Excluded Bois Blanc Island during 1985-1988 and Drummond Island in the Upper Peninsula.

[c]During 1985-1988, the North Zone included Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Clare, Emmet, Montmorency, Oscoda, Otsego, and Presque Isle counties. Roscommon county was added during 1985-1986, and Arenac, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, and Roscommon counties were added in 1988. During 1989-2010, the North Zone included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2010.

[d]The South Zone did not exist before 1989. During 1989-2010, the South Zone included Clare, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, Roscommon, and Wexford counties, and Arenac County west of Highway I-75 and north of Highway M-61. The South Zone also included Alcona and Oscoda counties during 1989-1990.

Table 2. Resident bobcat trapping season dates and seasonal bag limits in Michigan, 1985-2010.

Year	State-wide bag limit[a]	Trapping season zone: Upper Peninsula[b] Season dates	Upper Peninsula[b] Bag limit[a]	Drummond Island Season dates	Drummond Island Bag limit[a]	Lower Peninsula North[c] Season dates	Lower Peninsula South[d] Season dates	Lower Peninsula Bag limit[a]
1985	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1986	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1987	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1988	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1989	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1990	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1991	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1992	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1993	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1994	2	10/25-3/1	2	Closed	0	Closed	Closed	0
1995	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	0
1996	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
1997	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
1998	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
1999	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2000	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2001	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2002	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2003	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2004	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	1
2005	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	1
2006	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	0
2007	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	0
2008	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	1
2009	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	1
2010	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	1

[a]The statewide bag limit was the maximum number of bobcats that could be taken per person from all zones (hunting and trapping combined), and the bag limit for each zone was the maximum number that could be taken within a zone (hunting and trapping combined).

[b]Excluded Bois Blanc Island during 1985-1988 and Drummond Island in the Upper Peninsula.

[c]During 1985-1988, the North Zone included Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Clare, Emmet, Montmorency, Oscoda, Otsego, and Presque Isle counties. Roscommon county was added during 1985-1986, and Arenac, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, and Roscommon counties were added in 1988. During 1989-2010, the North Zone included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2010.

[d]The South Zone did not exist before 1989. During 1989-2010, the South Zone included Clare, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, Roscommon, and Wexford counties, and Arenac County west of Highway I-75 and north of Highway M-61. The South Zone also included Alcona and Oscoda counties during 1989-1990.

Table 3. Estimated number of furtakers (hunters and trappers combined) pursuing bobcat and their hunting and trapping effort (days combined) in Michigan for 2009 and 2010, summarized by area.

	Furtakers[a]					Hunting and trapping effort				
	Year					Year				
	2009		2010		Change	2009		2010		Change
Area	No.	95 CL	No.	95 CL	(%)	Days	95 CL	Days	95 CL	(%)
Upper Peninsula	994	40	1,073	44	8	18,403	1,178	22,090	1,486	20*
Lower Peninsula	1,196	42	1,347	48	13*	11,516	698	12,126	751	5
Unit C	672	35	710	38	6	6,923	585	6,616	583	-4
Unit D	608	33	718	38	18*	4,594	358	5,510	447	20*
Unspecified	134	17	74	13	-45*	782	262	197	55	-75*
Statewide	2,234	45	2,393	50	7*	30,701	1,307	34,413	1,585	12*

[a]Number of furtakers does not add up to statewide total because furtakers could hunt in more than one area.
*P<0.005.

Table 4. Estimated number of bobcats registered by furtakers (hunters and trappers combined) and proportion of furtakers registering at least one bobcat in Michigan during 2009 and 2010, summarized by area.

	Bobcats registered[a]					Furtakers registering a bobcat				
	Year					Year				
	2009		2010		Change	2009		2010		Difference
Area	No.	95 CL	No.	95 CL	(%)	%	95 CL	%	95 CL	(%)
Upper Peninsula	407	36	465	39	14	30	2	34	2	3
Lower Peninsula	232	22	256	25	11	19	2	19	2	0
Unit C	127	16	140	18	10	19	2	20	2	1
Unit D	104	15	117	17	12	17	2	16	2	-1
Unspecified	27	9	16	8	-40	18	5	16	7	-2
Statewide	666	42	737	46	11	25	1	26	1	1

[a]Although all furtakers harvesting a bobcat were required to present their animals at a DNR office for registration, this survey does not present information collected from registered bobcats.
*P<0.005.

Table 5. Estimated number of furtakers (hunters and trappers combined) attempting to capture a bobcat, days spent afield (effort), bobcats registered, and proportion of furtakers that registered a bobcat during 2010 in Michigan, summarized by county.

	Furtakers[a]		Hunting and trapping effort (days)		Bobcats registered		Furtakers that registered a bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Alcona	148	19	1,109	214	26	8	18	5
Alger	31	9	411	151	5	5	11	9
Alpena	107	16	779	188	21	7	20	6
Antrim	33	9	310	135	5	3	15	10
Arenac	11	5	84	56	2	2	14	16
Baraga	46	11	731	236	20	9	32	11
Charlevoix	34	9	238	81	3	3	10	8
Cheboygan	89	15	874	241	16	6	19	6
Chippewa	92	15	1,787	420	28	8	30	8
Clare	92	15	601	120	10	5	11	5
Crawford	69	13	417	96	5	3	7	5
Delta	146	19	2,708	468	57	15	28	6
Dickinson	97	15	1,884	395	38	11	32	7
Emmet	39	10	276	87	5	3	13	8
Gladwin	61	12	386	93	5	3	8	6
Gogebic	82	14	1,352	307	38	12	34	8
Houghton	51	11	910	270	16	8	26	10
Iosco	76	14	586	167	10	6	11	6
Iron	105	16	1,913	398	26	10	17	6
Kalkaska	56	12	332	115	8	4	15	7
Keweenaw	15	6	204	98	5	5	22	17
Luce	69	13	760	222	20	8	24	8
Mackinac	103	16	1,705	427	46	11	43	8
Marquette	115	17	1,959	386	33	11	21	6
Menominee	151	19	3,318	594	54	14	27	6
Missaukee	92	15	583	158	13	6	14	6
Montmorency	146	19	875	167	25	8	17	5
Ogemaw	76	14	603	133	11	6	13	6
Ontonagon	80	14	1,532	364	64	16	57	9
Osceola	94	15	604	133	26	8	28	7
Oscoda	125	17	877	182	15	6	12	5
Otsego	53	11	445	157	7	4	13	7
Presque Isle	92	15	833	204	16	6	18	6
Roscommon	136	18	826	134	15	6	11	4
Schoolcraft	61	12	915	282	15	6	24	9
Wexford	71	13	488	124	11	5	16	7
Unspecified	74	13	197	55	16	8	16	7

[a]Number of furtakers does not add up to statewide total because furtakers could hunt and trap in more than one county.

Table 6. Estimated number of bobcat hunters and hunting effort (days) in Michigan for 2009 and 2010, summarized by area.

	Hunters[a]					Hunting effort				
	Year					Year				
	2009		2010		Change	2009		2010		Change
Area	No.	95% CL	No.	95% CL	(%)	Days	95% CL	Days	95% CL	(%)
Upper Peninsula	565	33	604	36	7	6,616	589	6,549	605	-1
Lower Peninsula	1,071	41	1,165	46	9*	10,126	670	9,852	696	-3
Unit C	624	34	641	37	3	6,269	562	5,757	558	-8
Unit D	529	32	603	36	14*	3,857	328	4,095	370	6
Unspecified	80	13	46	11	-42*	473	142	191	54	-60*
Statewide	1,654	46	1,734	50	5	17,215	872	16,591	899	-4

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
*P<0.005.

Table 7. Estimated number of bobcats passed, bobcats registered by hunters, and proportion of hunters that registered at least one bobcat in Michigan for 2009 and 2010, summarized by area.

	Bobcats passed[a]					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2009		2010			2009		2010			2009		2010		Differ-
Area	No.	95% CL	No.	95% CL	Change (%)	No.	95% CL	No.	95% CL	Change (%)	%	95% CL	%	95% CL	ence (%)
Upper Peninsula	557	100	521	88	-7	144	20	161	22	12	22	3	24	3	2
Lower Peninsula	788	99	871	104	10	184	19	186	21	1	17	2	16	2	-1
Unit C	361	53	550	83	52*	113	15	112	16	-2	18	2	17	2	-1
Unit D	427	83	320	54	-25	70	12	74	14	5	13	2	12	2	-1
Unspecified	42	16	7	6	-84*	21	7	16	8	-21	26	7	25	10	-1
Statewide	1,387	142	1,398	136	1	349	28	363	31	4	20	1	19	1	<1

[a]An estimated 13 ± 8 bobcats were passed by hunters in areas not open for hunting during 2010; these passed bobcats were not included in statewide estimate.
*P<0.005.

Table 8. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2010, summarized by county.

	Hunters[a]		Hunting effort (days)		Bobcats passed by hunters[b]		Bobcats registered by hunters		Hunters that registered at least one bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Alcona	133	18	900	198	103	38	20	7	15	5
Alger	16	6	92	50	7	4	0	0	0	0
Alpena	97	15	682	175	53	20	16	6	17	6
Antrim	30	9	276	132	25	14	5	3	17	11
Arenac	10	5	69	53	3	4	2	2	17	19
Baraga	13	6	80	41	7	6	2	2	13	14
Charlevoix	31	9	220	78	18	12	3	3	11	9
Cheboygan	80	14	770	230	62	24	13	6	16	6
Chippewa	54	11	604	165	41	18	15	6	27	10
Clare	76	14	424	92	34	14	5	3	7	4
Crawford	67	13	409	95	20	13	5	3	7	5
Delta	94	15	974	217	100	35	21	8	21	7
Dickinson	57	12	517	166	44	21	10	6	14	7
Emmet	36	9	238	81	5	5	3	3	9	8
Gladwin	49	11	240	65	16	10	5	3	10	7
Gogebic	30	9	264	96	71	38	5	3	17	11
Houghton	23	8	151	63	7	6	8	4	36	16
Iosco	66	13	506	161	30	14	8	5	10	6
Iron	57	12	560	173	39	18	10	6	14	7

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
[b]Bobcats that hunter could have harvested but chose not to take.

Table 8. (Continued) Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2010, summarized by county.

	Hunters[a]		Hunting effort (days)		Bobcats passed by hunters[b]		Bobcats registered by hunters		Hunters that registered at least one bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Kalkaska	48	11	296	112	25	11	5	3	10	7
Keweenaw	11	5	140	83	0	0	2	2	14	16
Luce	43	10	233	66	20	11	5	3	12	8
Mackinac	72	13	522	149	26	12	33	9	45	9
Marquette	76	14	665	157	39	17	11	6	13	6
Menominee	102	16	1,247	281	77	35	16	8	13	5
Missaukee	79	14	384	88	25	10	8	4	10	5
Montmorency	140	18	806	161	92	22	23	8	16	5
Ogemaw	64	12	422	105	31	14	7	4	10	6
Ontonagon	30	9	266	98	20	12	11	7	28	13
Osceola	74	13	374	107	59	27	13	6	18	7
Oscoda	113	17	728	163	51	17	8	4	7	4
Otsego	43	10	371	152	38	19	3	3	8	6
Presque Isle	89	15	765	197	103	37	16	6	19	6
Roscommon	122	17	637	114	56	27	13	6	11	4
Schoolcraft	38	10	232	89	23	14	11	5	30	12
Wexford	51	11	333	110	21	15	3	3	6	5
Unspecified	46	11	191	54	7	6	16	8	25	10

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
[b]Bobcats that hunter could have harvested but chose not to harvest.

Table 9. Estimated number of days of effort per bobcat registered by hunters in Michigan during 2007-2010, summarized by year and area.

	Year						
	2008		2009		2010		
Area	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Change between 2009 and 2010 (%)
Upper Peninsula	59.6	4.2	45.7	2.6	40.7	2.5	-11
Lower Peninsula	57.0	4.2	56.0	3.3	53.1	3.2	-5
Unit C	57.4	2.9	55.6	2.6	51.5	2.4	-7
Unit D	56.7	2.9	56.8	2.1	55.4	2.0	-2
Unspecified	16.2	0.6	21.5	0.6	11.6	0.2	
Statewide	55.6	5.9	49.5	4.2	45.7	4.0	-8

*P<0.005. Comparison between 2009 and 2010.

Table 10. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2010, summarized by hunting method and area.

Variable and area	Hunting method							
	Dogs		Calls		Other		Unknown	
	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunters (No.)[a]								
UP	230	23	332	27	77	14	13	6
LP	453	32	691	38	79	14	10	5
Unit C	266	25	376	29	33	9	5	3
Unit D	225	23	351	28	46	11	5	3
Unspecified	23	8	20	7	3	3	3	3
Statewide	652	37	1,020	44	159	19	25	8
Hunting effort (Days)								
UP	2,464	419	3,137	370	831	208	117	64
LP	4,395	538	4,893	420	481	126	82	56
Unit C	2,860	429	2,638	330	207	83	53	51
Unit D	1,536	250	2,255	247	274	95	30	21
Unspecified	130	47	48	23	10	9	3	4
Statewide	6,989	686	8,078	549	1,322	242	202	85
Bobcats passed by hunters (No.)								
UP	325	78	151	31	41	27	3	4
LP	542	89	274	43	54	27	0	0
Unit C	379	73	146	30	25	15	0	0
Unit D	163	39	128	30	30	23	0	0
Unspecified	7	6	0	0	0	0	0	0
Statewide[b]	874	119	425	54	95	38	3	4
Bobcats registered by hunters (No.)								
UP	84	16	53	12	21	8	3	3
LP	94	15	80	14	11	5	0	0
Unit C	62	12	44	10	5	3	0	0
Unit D	31	9	36	10	7	4	0	0
Unspecified	15	8	0	0	2	2	0	0
Statewide	192	23	133	19	34	10	3	3
Hunters that registered at least one bobcat (%)								
UP	31	5	14	3	26	8	25	19
LP	21	3	11	2	15	6	0	0
Unit C	23	4	12	3	15	10	0	0
Unit D	14	4	10	2	14	8	0	0
Unspecified	43	16	0	0	50	43	0	0
Statewide	27	3	12	2	21	5	13	11

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.

Table 11. Estimated number of bobcat hunters using dogs and their hunting effort (days) in Michigan for 2009 and 2010, summarized by area.

	Hunters using dogs[a]					Hunting effort				
	Year					Year				
	2009		2010		Change	2009		2010		Change
Area	No.	95% CL	No.	95% CL	(%)	Days	95% CL	Days	95% CL	(%)
Upper Peninsula	191	20	230	23	21	2,411	391	2,464	419	2
Lower Peninsula	426	29	453	32	6	4,542	538	4,395	538	-3
Unit C	245	22	266	25	9	2,908	455	2,860	429	-2
Unit D	209	21	225	23	8	1,634	226	1,536	250	-6
Unspecified	43	10	23	8	-47*	229	73	130	47	-43
Statewide	616	34	652	37	6	7,182	681	6,989	686	-3

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
*P<0.005.

Table 12. Estimated number of bobcats passed, bobcats registered by hunters using dogs, and proportion of these hunters that registered at least one bobcat in Michigan for 2009 and 2010, summarized by area.

	Bobcats passed					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2009		2010			2009		2010			2009		2010		Differ-
Area	No.	95% CL	No.	95% CL	Change (%)	No.	95% CL	No.	95% CL	Change (%)	%	95% CL	%	95% CL	ence (%)
Upper Peninsula	344	91	325	78	-6	56	12	84	16	49	25	5	31	5	6
Lower Peninsula	435	68	542	89	25	68	12	94	15	37	16	3	21	3	5
Unit C	210	44	379	73	81*	43	9	62	12	44	18	4	23	4	6
Unit D	225	50	163	39	-28	25	7	31	9	26	12	3	14	4	2
Unspecified	22	10	7	6	-71	16	6	15	8	-8	37	11	43	16	6
Statewide	802	116	874	119	9	140	18	192	23	37*	21	2	27	3	6*

*P<0.005.

Table 13. Estimated number of bobcat hunters using calls and their hunting effort (days) in Michigan for 2009 and 2010, summarized by area.

	Hunters using calls[a]					Hunting effort				
	Year					Year				
	2009		2010		Change	2009		2010		Change
Area	No.	95% CL	No.	95% CL	(%)	Days	95% CL	Days	95% CL	(%)
Upper Peninsula	345	26	332	27	-4	3,506	389	3,137	370	-11
Lower Peninsula	625	34	691	38	11	4,969	397	4,893	420	-2
Unit C	368	27	376	29	2	2,995	316	2,638	330	-12
Unit D	306	25	351	28	15	1,974	225	2,255	247	14
Unspecified	27	8	20	7	-28	221	111	48	23	-78*
Statewide	987	40	1,020	44	3	8,695	546	8,078	549	-7

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
*P<0.005.

Table 14. Estimated number of bobcats passed, bobcats registered by hunters using calls, and proportion of these hunters that registered at least one bobcat in Michigan for 2009 and 2010, summarized by area.

	Bobcats passed[a]					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2009		2010			2009		2010			2009		2010		Differ-
Area	No.	95% CL	No.	95% CL	Change (%)	No.	95% CL	No.	95% CL	Change (%)	%	95% CL	%	95% CL	ence (%)
Upper Peninsula	170	36	151	31	-11	67	14	53	12	-22	17	3	14	3	-3
Lower Peninsula	304	70	274	43	-10	90	14	80	14	-10	14	2	11	2	-3
Unit C	123	25	146	30	19	59	11	44	10	-25	16	3	12	3	-4
Unit D	182	65	128	30	-29	31	8	36	10	17	10	3	10	2	0
Unspecified	19	12	0	0	-100*	5	3	0	0	-100*	18	11	0	0	-18*
Statewide	493	79	425	54	-14	162	20	133	19	-18	16	2	12	2	-3

[a]An estimated 13 ± 8 bobcats were passed by hunters in areas not open for hunting during 2010; these passed bobcats were not included in statewide estimate.
*P<0.005.

Table 15. Correlation between average bobcat pelt prices and number of hunters, days of effort, bobcats registered, and effort per registered bobcat in Michigan during 1997-2010, summarized by region.[a]

Estimate and region	Correlation[b]	Significance (P-value)[c]
Number of hunters		
UP	0.66	0.01
NLP	0.52	0.06
Days of effort		
UP	0.66	0.01
NLP	0.61	0.02
Bobcats registered[d]		
UP	-0.59	0.03
NLP	0.04	0.89
Effort per bobcats registered		
UP	0.68	0.01
NLP	0.65	0.01

[a]Mean pelt prices were the average paid in Minnesota and Wisconsin (Abraham and Dexter 2010, Dhuey 2010). Pelt prices were reported in 2010 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2010).
[b]Pearson product moment correlation coefficient.
[c]P-value is the probability of obtaining this correlation result (2-sided test).
[d]The tally of bobcats registered by furtakers at DNR registration stations, rather than estimate from survey.

Table 16. Estimated number of bobcat trappers and their trapping effort (days) in Michigan for 2009 and 2010, summarized by area.

	Trappers[a]					Trapping effort				
	Year					Year				
	2009		2010		Change	2009		2010		Change
Area	No.	95% CL	No.	95% CL	(%)[b]	Days	95% CL	Days	95% CL	(%)[b]
Upper Peninsula	547	33	588	35	7	11,787	981	15,541	1,288	32*
Lower Peninsula	191	20	279	25	46*	1,391	174	2,275	278	64*
Unit C	89	14	118	17	32	654	123	859	144	31
Unit D	102	15	163	20	59*	737	126	1,416	239	92*
Unspecified	62	12	30	9	-53*	309	168	7	8	-98*
Statewide	794	38	887	42	12*	13,467	999	17,822	1,307	32*

[a]Number of trappers does not add up to statewide total because trappers could trap in more than one area.
*P<0.005.

Table 17. Estimated number of bobcats captured, bobcats released alive, and bobcats registered by trappers in Michigan for 2009 and 2010, summarized by area.

	Bobcats captured					Bobcats released alive					Bobcats registered				
	Year					Year					Year				
	2009		2010			2009		2010			2009		2010		
Area	No.	95% CL	No.	95% CL	Change (%)[a]	No.	95% CL	No.	95% CL	Change (%)[a]	No.	95% CL	No.	95% CL	Change (%)[a]
Upper Peninsula	349	40	386	43	11	86	20	82	20	-5	263	30	304	33	15
Lower Peninsula	113	25	112	23	-1	66	20	41	14	-37	48	10	71	13	48
Unit C	49	16	49	15	1	35	15	21	9	-39	14	5	28	8	103*
Unit D	64	18	62	17	-3	30	13	20	11	-35	34	9	43	11	26
Unspecified	13	9	0	0	-100*	6	5	0	0	-100*	6	5	0	0	-100*
Statewide[a]	475	48	498	48	5	158	29	123	24	-22	317	32	374	36	18

[a]An estimated 7 ± 6 bobcats were captured and released alive by trappers in areas not open to bobcat hunting (Unit E) in 2010. This estimate was not included in 2010 statewide estimates of bobcats captured and released by trappers.
*P<0.005.

Table 18. Estimated proportion of bobcat trappers that captured at least one bobcat and proportion that registered at least one bobcat in Michigan for 2009 and 2010, summarized by area.

	Trappers that captured a bobcat					Trappers that registered a bobcat				
	Year					Year				
	2009[a]		2010		Difference	2009[a]		2010		Difference
Area	%	95% CL	%	95% CL	(%)	%	95% CL	%	95% CL	(%)[a]
Upper Peninsula	38	3	41	3	4	33	3	38	3	4
Lower Peninsula	37	5	28	4	-9	24	5	25	4	0
Unit C	36	8	31	7	-5	16	6	24	6	8
Unit D	38	7	26	5	-12	32	7	25	5	-7
Unspecified	8	5	0	0	-8*	5	4	0	0	-5*
Statewide	35	3	36	3	1	29	2	33	2	3

*P<0.005.

Table 19. Estimated number of days of effort per bobcat registered in Michigan by trappers for the 2008-2010, summarized by year and area.[a]

	Year						
	2008[a]		2009[a]		2010		
Area	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Change between 2009 and 2010 (%)[a]
Upper Peninsula	59.2	5.5	44.7	5.1	51.1	4.8	14
Lower Peninsula	34.0	1.3	29.3	1.1	32.2	1.2	10*
Unit C	42.5	0.9	48.6	1.0	30.8	0.7	-37*
Unit D	29.4	1.0	21.6	0.7	33.2	1.0	53*
Unspecified	19.8	0.2	47.2	0.8	0.0	0.0	
Statewide	55.3	5.5	42.4	5.2	47.6	4.9	12

*P<0.005. Comparison between 2009 and 2010.

Table 20. Estimated number of trappers, trapping effort (days), bobcats captured, bobcats released, bobcats registered, and proportion of trappers that captured and registered a bobcat in Michigan during 2010, summarized by county.

	Trappers[a]		Trapping effort (days)		Bobcats captured by trappers		Bobcats released alive by trappers		Bobcats registered by trappers		Trappers that captured at least one bobcat		Trappers that registered at least one bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	%	95% CL
Alcona	26	8	209	69	10	6	3	3	7	4	31	14	25	13
Alger	16	6	319	134	5	5	0	0	5	5	20	16	20	16
Alpena	15	6	97	46	11	9	7	6	5	3	44	20	33	19
Antrim	7	4	34	22	0	0	0	0	0	0	0	0	0	0
Arenac	2	2	15	18	0	0	0	0	0	0	0	0	0	0
Baraga	34	9	650	231	23	10	5	5	18	8	43	13	38	13
Charlevoix	3	3	18	22	0	0	0	0	0	0	0	0	0	0
Cheboygan	11	5	103	58	3	3	0	0	3	3	29	21	29	21
Chippewa	49	11	1,183	343	21	10	8	5	13	6	30	10	27	10
Clare	21	7	177	64	5	3	0	0	5	3	23	14	23	14
Crawford	2	2	8	10	0	0	0	0	0	0	0	0	0	0
Delta	72	13	1,734	389	38	13	2	2	36	12	32	9	32	9
Dickinson	48	11	1,367	354	28	10	0	0	28	10	48	11	48	11
Emmet	5	3	38	29	2	2	0	0	2	2	33	33	33	33
Gladwin	18	7	146	56	0	0	0	0	0	0	0	0	0	0
Gogebic	57	12	1,087	287	49	17	16	9	33	11	51	10	40	10
Houghton	33	9	759	254	8	5	0	0	8	5	20	11	20	11
Iosco	13	6	80	43	3	3	2	2	2	2	25	19	13	14
Iron	56	12	1,353	348	16	8	0	0	16	8	21	9	21	9

[a]Number of trappers does not add up to statewide total because trappers could trap in more than one county.

Table 20. (Continued) Estimated number of trappers, trapping effort (days), bobcats captured, bobcats released, bobcats registered, and proportion of trappers that captured and registered a bobcat in Michigan during 2010, summarized by county.

	Trappers[a]		Trapping effort (days)		Bobcats captured by trappers		Bobcats released alive by trappers		Bobcats registered by trappers		Trappers that captured at least one bobcat		Trappers that registered at least one bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	%	95% CL
Kalkaska	10	5	36	24	3	3	0	0	3	3	33	24	33	24
Keweenaw	5	3	64	50	7	8	3	4	3	4	33	33	33	33
Luce	34	9	527	198	23	12	8	7	15	7	38	13	33	13
Mackinac	44	10	1,183	345	30	14	16	10	13	6	33	11	26	10
Marquette	54	11	1,294	337	28	12	7	6	21	9	30	10	27	10
Menominee	66	13	2,071	469	41	13	3	3	38	12	43	10	43	10
Missaukee	16	6	199	129	5	3	0	0	5	3	30	18	30	18
Montmorency	13	6	69	35	5	5	3	3	2	2	25	19	13	14
Ogemaw	18	7	181	67	7	5	2	2	5	5	27	16	18	14
Ontonagon	59	12	1,266	326	62	16	10	5	53	14	69	9	64	10
Osceola	31	9	230	69	25	13	11	9	13	6	42	14	42	14
Oscoda	20	7	149	57	13	8	7	5	7	4	42	17	33	17
Otsego	11	5	74	36	5	3	2	2	3	3	43	23	29	21
Presque Isle	10	5	67	39	0	0	0	0	0	0	0	0	0	0
Roscommon	25	8	189	66	2	2	0	0	2	2	7	8	7	8
Schoolcraft	28	8	683	263	7	4	3	3	3	3	24	13	12	10
Wexford	21	7	154	57	13	7	5	3	8	4	46	17	38	17
Unspecified	30	9	7	8	0	0	0	0	0	0	0	0	0	0

[a]Number of trappers does not add up to statewide total because trappers could trap in more than one county.

Table 21. Trap type used by bobcat trappers in Michigan during 2010.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	77	2	682	38
Conibears	41	3	363	29
Other[a]	3	1	28	8

[a]Included snares and live traps, although snares were not legal to use to capture bobcats.

Table 22. Preferred trap type of bobcat trappers in Michigan during 2010.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	50	3	440	31
Conibears	29	2	260	25
No preference	18	2	156	19
Other[a]	2	1	16	6
No answer	2	1	15	6

[a]Snares were not legal to use to capture bobcats.

Table 23. Correlation between average bobcat pelt prices and number of trappers, days of effort, bobcats registered, and effort per registered bobcat in Michigan during 1997-2010, summarized by region.[a]

Estimate and region	Correlation[b]	Significance (P-value)[c]
Number of trappers		
UP	0.80	<0.01
NLP[d]	0.93	0.02
Days of effort		
UP	0.90	<0.01
NLP[d]	0.89	0.04
Bobcats registered[e]		
UP	0.22	0.45
NLP[d]	0.26	0.37
Effort per bobcats registered		
UP	0.55	0.04
NLP[d]	0.87	0.05

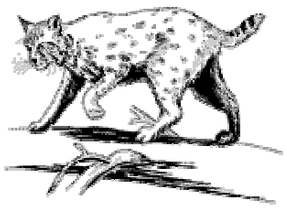
[a]Mean pelt prices were the average paid in Minnesota and Wisconsin (Abraham and Dexter 2010, Dhuey 2010). Pelt prices were reported in 2010 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2010).
[b]Pearson product moment correlation coefficient.
[c]P-value is the probability of obtaining this correlation result (2-sided test).
[d]Bobcat could be harvested by trappers in the NLP during 2004-2005 and 2008-2010 only.
[e]The tally of bobcats registered by furtakers at DNR registration stations, rather than estimate from survey.

Appendix A. The questionnaire sent to people that obtained a bobcat harvest tag in Michigan for the 2010 bobcat hunting and trapping seasons.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES, WILDLIFE DIVISION
PO BOX 30030 LANSING MI 48909-7530

BOBCAT HUNTER AND TRAPPER SURVEY

This information is requested under authority of Part 435, 1994 PA 451, M.C.L. 324.43539.



- It is important that you complete and return this questionnaire even if you did not harvest a bobcat during the 2010-11 hunting and trapping seasons (December 1, 2010, through March 1, 2011).
- Only the person this questionnaire was addressed to should answer these questions. Do not report results for another person.

PART A: Hunting Questions *(Questions about trapping are on reverse side)*

1. Did you <u>hunt</u> bobcats during the 2010-11 season?

1 ☐ Yes 2 ☐ No (*Skip to Question #9*)

2. How many years have you <u>hunted</u> bobcats? _____ Years

3. If you <u>hunted</u> bobcats during the 2010-11 season, please complete the following table.

HUNTING METHOD (Select hunting method used.)	**COUNTY HUNTED** (For each hunting method used, list the county that you hunted on separate lines.)	**NUMBER OF DAYS HUNTED** (Count all days hunted even if you did not have an opportunity to take a bobcat)	**NUMBER OF BOBCAT REGISTERED** (Count only bobcat where a seal was attached to the pelt, and the animal was returned to you.)	**NUMBER OF BOBCATS NOT TAKEN** (Count the number of bobcats you called within range or treed but chose <u>not</u> to harvest.)
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				

4. On what lands did you <u>hunt</u> bobcats during the 2010-11 season? (*You may check more than one.)*

1 ☐ Property owned by me or my family
2 ☐ Private land, with permission
3 ☐ Private land open to public hunting (For example, Commercial Forests, Hunter Access Program)
4 ☐ Public land (State Game Area, State or National Forest, etc.)

5. Did you hunt bobcats with dogs during the 2010-11 season?

1 ☐ Yes 2 ☐ No (*Skip to Question #9*)

6. Who owned the dogs that you used to hunt bobcats during the 2010-11 season? (Check one)

1 ☐ Normally use dogs that I own.
2 ☐ Normally use dogs owned by someone else.
3 ☐ Normally use a combination of my dogs and dogs owned by someone else.

7. **Report the number of bobcat chases with dogs you participated in during the 2010-11 season.** _____ Chases

8. **Did you hire a guide to assist with hunting bobcats at any time during the 2010-11 season?** 1 ☐ Yes 2 ☐ No

PART B: Trapping Questions

9. **Did you attempt to harvest a bobcat while <u>trapping</u> in the 2010-11 season?**
1 ☐ Yes 2 ☐ No (*Skip to Question #16*)

10. **How many years have you <u>trapped</u> bobcats?** _____ Years

11. **If you <u>trapped</u> bobcats during the 2010-11 season, please complete the following table.**

COUNTY TRAPPED (List each county that you trapped for bobcat.)	**NUMBER OF DAYS TRAPPED**	**NUMBER OF BOBCAT CAUGHT AND RELEASED** (Count only bobcats you released alive from your traps.)	**NUMBER OF BOBCAT REGISTERED** (Count only bobcat where a seal was attached to the pelt, and the animal was returned to you.)

12. **On what lands did you trap bobcats during the 2010-11 season?** (*You may check more than one.)*
1 ☐ Property owned by me or my family
2 ☐ Private land, with permission
3 ☐ Private land open to public hunting (For example, Commercial Forests, Hunter Access Program)
4 ☐ Public land (State Game Area, State or National Forest, etc.)

13. **How many of the following traps did you set for bobcat in the 2010-11 season?**
(For each type, record the average number used per day.)
_____ Foothold traps
_____ Conibears
_____ Other (Please specify_____)

14. **Which capture method do you <u>prefer</u> to catch bobcats?** *(Check one.)*
1 ☐ Foothold traps 2 ☐ Conibears 3 ☐ No preference 4 ☐ Other (please specify _____)

15. **Did you catch any bobcats in traps that were set for another species in the 2010-11 season?**
1 ☐ Yes 2 ☐ No

PART C: General Questions

16. **Compared to the previous three years, what is the status of bobcats in the county that you prefer to hunt or trap bobcats in the 2010-11 season?**
1 ☐ Increasing 2 ☐ Decreasing 3 ☐ Stable 4 ☐ Not present 5 ☐ Unknown

17. **Do you have any comments or suggestions about bobcat management in Michigan? Also describe any other incidental bobcats you may have captured but have not reported on this report.**

_____
_____
_____
_____
_____
_____

Please return questionnaire in the enclosed postage-paid envelope.
Thank you for your help.